UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,802	12/04/2003	Heiko Schwarz	S&ZFH030507	6860

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/727,802	SCHWARZ ET AL.
	Examiner	Art Unit	
	Tung Vo	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>03</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 April 2004*.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 24-38* is/are pending in the application.

    4a) Of the above claim(s) *14-23* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 24-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some *   c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *04/04/05; 01/31/05; 10/06/04*.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____ .

PTOL-326 (Rev. 08-06)   **Office Action Summary**   Part of Paper No./Mail Date 20070419

DETAILED ACTION

Claim Rejections - 35 USC § 112

1.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2.   Claims 1, 10-13, 24, 28, 33-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrases "and/or" in claims 1, 10-12, 24, 33-36 and "such as or for example" in claims 13 and 28 are indefinite and should be avoided.

Claim Rejections - 35 USC § 101

3.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4.   Claims 11-13, and 34-36 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 11-12 and 34-35 defines a program and a computer program embodying functional descriptive material. However, the claim does not define a computer-readable medium or memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). That is, the scope of

the presently claimed a computer program and a program can range from paper on which the

program is written, to a program simply contemplated and memorized by a person. The

examiner suggests amending the claim to embody the program on "computer-readable medium"

or equivalent in order to make the claim statutory. Any amendment to the claim should be

commensurate with its corresponding disclosure.

Claim 11, line 1, after "A computer program", insert – stored in a computer readable

medium--; see also claim 34.

Claim 12, line 2, after "which a", insert – computer --; see also claim 35.

Claims 13 and 36 are drawn to functional descriptive material recorded on a data stream.

Normally, the claim would be statutory. However, the specification, at page [0050] of the

publication application defines the claimed computer program as encompassing statutory media

such as a network for transfer or a downloaded program as well as *non-statutory* subject mater

such as a "signal".

A "signal" embodying functional descriptive material is neither a process nor a product

(i.e., a tangible "thing") and therefore does not fall within one of the four statutory classes of §

101. Rather, "signal" is a form of energy, in the absence of any physical structure or tangible

material.

Because the full scope of the claim as properly read in light of the disclosure

encompasses non-statutory subject matter, the claim as a whole is non-statutory. The examiner

suggests amending the claim to *include* the disclosed tangible computer readable media, while at

the same time *excluding* the intangible media such as signals, carrier waves, a data stream. Any

amendment to the claim should be commensurate with its corresponding disclosure.

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6.   Claims 1-12 and 24-38 are rejected under 35 U.S.C. 102(e) as being anticipated by Said

(US 7,190,840).

Re claims 1, 10, 11, and 12, Said discloses a machine (510 of fig. 5) having a program

for performing a method for coding transform coefficients in picture and/or video coders (fig. 1)

and decoders (fig. 4) wherein for blocks of (video) pictures containing significant transform

coefficients (110 of fig. 1; see also fig. 3), the coding of transform coefficients takes place in

such a way that, for each block (112 and 114 of fig. 1), in a scan process (116 of fig. 1; 314, 324,

and 326 of fig. 3), the positions of significant transform coefficients in the block and

subsequently (fig. 2), in a reverse scan order (116 of fig. 1; 322 of fig. 3) - starting with the last

significant transform coefficients within the block (col. 5, line 60-col. 6, line 2) - the values

(levels) of the significant transform coefficients are determined (322 of fig. 2, Note assign

codebook) and coded (118 of fig. 1).

Re claim 2, Said further discloses wherein each significant transform coefficient of the

block other than the last transform coefficient of the block is characterized by a one-bit symbol

(316 and 318 of fig. 3).

Re claim 3, Said further discloses wherein for each significant transform coefficient, the sign is indicated by a one-bit symbol (SIGN) (316 and 318 of fig. 3) and the magnitude is indicated by a binary-coded symbol (ABS) (encoded or coded coefficients are binary code symbol, "1" and "0").

Re claims 4 and 27, Said discloses wherein the magnitude is indicated by a symbol (ABS) in unary binarization or by a symbol (ABS) having a prefix part and a suffix part, wherein the prefix part consists of ones and the suffix part is coded in a 0th order exp-golomb code (encoded or compressed coefficient is inherently a binary code).

Re claim 5, Said further discloses wherein blocks containing significant transform coefficients are characterized by a one-bit symbol CBP4 in connection with further syntax elements, such as, for example, CBP or macro block mode (fig. 2).

Re claim 6, Said further discloses wherein by transferring a one-bit symbol (SIG) for each coefficient of a block and a one-bit symbol (LAST) for each significant coefficient of a block, a significance mapping is coded, wherein the transfer takes place in a scan order, (SIG) serves for identifying significant coefficients and (LAST) indicates whether there are further significant transform coefficients in the block (326, 320, and 322 of fig. 3).

Re claim 7, Said further discloses wherein modeling for the one-bit symbol CBP4, for coding the significance mapping and/or for coding the coefficient magnitudes takes place in a context-dependent way (col. 2, lines 55-65).

Re claim 8, Said further discloses wherein no significance information (SIG, LAST) is transferred for the last scan position of a block (320 of fig. 3).

Re claim 9, Said further discloses wherein block types of transform coefficients having comparable statistics are summarized to block categories (fig. 3, Note total zero and non-zero coefficients).

Re claims 24, and 33-38, Said further discloses a method for coding transform coefficients in picture and/or video coders and decoders (figs. 1-5) wherein for blocks of (video) pictures containing transform coefficients being unequal to zero (322 of fig. 3), a coding of transform coefficients takes place in such a way that, for each block, a significance map is coded (PROCESSING COFFICIENTS IN SCAN, WORKING IN REVERSE ORDER, considered as mapping, from last non-zero coefficient to the first coefficient, then coding the mapped coefficients (118 of fig. 1)), the significance map specifying the positions of transform coefficients being unequal to zero in the block in a scan order (NONE ZERO COEFFICIENTS, col. 3, lines 15-49), and subsequently, in a reverse scan order, starting with the last transform coefficient being unequal to zero within the block, the values (levels) of the transform coefficients being unequal to zero are coded (118 of fig. 1).

Re claims 25 and 29, Said further discloses wherein when coding the significance map, each transform coefficient being unequal to zero in the scan order is characterized by a first one-bit symbol (SIG) serving to characterize transform coefficients being unequal to zero, i.e. each transform coefficient being unequal to zero including the last transform coefficient being unequal to zero in the scan order if it is different from the last transform coefficient of the block in the scan order, or excluding the last transform coefficient being unequal to zero in the scan order if it is the last transform coefficient of the block in the scan order, and the last transform coefficient being unequal to zero is characterized by a second one-bit symbol (LAST) indicating that the

respective transform coefficient being unequal to zero is the last transform coefficient being

unequal to zero in the scan order if it is different from the last transform coefficient of the block

in the scan order (fig. 3; see fig. 2 for different scans order).

Re claim 26, Said further discloses wherein for each transform coefficient being unequal

to zero, sign is indicated by a one-bit symbol (SIGN) (316 and 318 of fig. 3) and the magnitude

is indicated by a binary-coded symbol (ABS) (encoded or coded coefficients are binary code, 1

and 0).

Re claim 28, Said further discloses blocks containing transform coefficients being

unequal to zero are characterized by a one-bit symbol (CBP4) in connection with further syntax

elements, such as, for example, (CBP) or macro block mode (fig. 2).

Re claim 30, Said further discloses wherein modeling for the one-bit symbol (CBP4) (fig.

2, Macroblock), for coding the significance map (codebook, col. 3, lines 15049) and/or for

coding the coefficient magnitudes takes place in a context-dependent way (col. 2, lines 55-65).

Re claim 31, Said further discloses wherein no significance information (SIG, LAST) is

transferred for the last scan position of a block (320 of fig. 1, Note code last non-zero

coefficient).

Re claim 32, Said further wherein block types of transform coefficients having

comparable statistics are summarized to block categories (All Scan = 0, 314 of fig. 3).

7.   Claims 1, 10-13, 24, 33-38 are rejected under 35 U.S.C. 102(e) as being anticipated by

Mitchell (US 5,819,803).

Re claims 1, and 10-13, Mitchell discloses a machine having a program for performing a method for coding transform coefficients in picture and/or video coders and decoders wherein for blocks of (video) pictures containing significant transform coefficients (60 of fig. 1), the coding of transform coefficients takes place in such a way that, for each block (fig. 15), in a scan process (ORIGINAL ZIGZAG ORDER of fig. 16), the positions of significant transform coefficients in the block and subsequently, in a reverse scan order (TRANSPOSE ZIGZAG ORDER of fig. 16) - starting with the last significant transform coefficients within the block - the values (levels) of the significant transform coefficients are determined and coded (fig. 8, Note substantial data processing is required for encoding and decoding, particularly due to the need for statistical analyses of converted image values (e.g. discrete cosine transform (DCT) coefficients) in order to assure substantial data compression in accordance with the concept of entropy coding); wherein a computer program according to claim 11 is downloaded from an electronic data network, such as, for example, the Internet, to data processing means connected to the data network (col. 4, lines 45-58).

Re claims 24, and 33-38, Said further discloses a method for coding transform coefficients in picture and/or video coders and decoders (fig. 8, Note substantial data processing is required for encoding and decoding, particularly due to the need for statistical analyses of converted image values (e.g. discrete cosine transform (DCT) coefficients) in order to assure substantial data compression in accordance with the concept of entropy coding) wherein for blocks of (video) pictures containing transform coefficients being unequal to zero (TRANSPOSE ZIGZAG ORDER of fig. 16), a coding of transform coefficients takes place in such a way that, for each block, a significance map is coded (fig. 15), the significance map specifying the

positions of transform coefficients being unequal to zero in the block in a scan order

(TRANPOSE ZIGZAG ORDER of fig. 16), and subsequently, in a reverse scan order, starting

with the last transform coefficient being unequal to zero within the block, the values (levels) of

the transform coefficients being unequal to zero are coded (fig. 11A and 11B).

Conclusion

8.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

Miyake et al. (US 6,546,145) discloses image compression using selection of

quantization method.

Contact Information

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Tung Vo whose telephone number is 571-272-7340. The

examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tung Vo
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Art Unit 2621